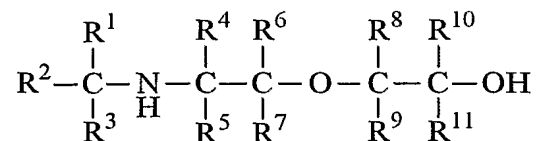
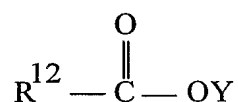


## CLAIMS:

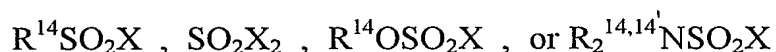
1. A method for the synthesis of severely sterically hindered secondary aminoether alcohols of the formula



wherein  $\text{R}^1$  and  $\text{R}^2$  are each selected from the group consisting of alkyl, hydroxylalkyl radicals having 1 to 4 carbon atoms or in combination with the carbon atom to which they are attached they form a cycloalkyl group having 3 to 8 carbon atoms, and  $\text{R}^3$  is selected from the group consisting of hydrogen, alkyl hydroxyalkyl radicals having 1 to 4 carbon atoms, and mixtures thereof, and  $\text{R}^4$ ,  $\text{R}^5$ ,  $\text{R}^6$ ,  $\text{R}^7$ ,  $\text{R}^8$ ,  $\text{R}^9$ ,  $\text{R}^{10}$  and  $\text{R}^{11}$  are the same or different and are selected from the group consisting of hydrogen, alkyl and hydroxyalkyl radicals having 1 to 4 carbons provided that at least one of  $\text{R}^4$  or  $\text{R}^5$  bonded to the carbon atom directly bonded to the nitrogen atom is an alkyl or hydroxyalkyl radical when  $\text{R}^3$  is hydrogen, the process involving reacting an organic carboxylic acid or salt of a carboxylic acid of the formula

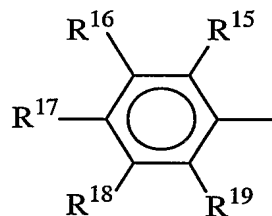


wherein  $\text{R}^{12}$  is selected from the group consisting of alkyl radicals having 1 to 4 carbon atoms, aryl radicals bearing hydrogen or one or more  $\text{C}_1$ - $\text{C}_{10}$  alkyl groups substituted thereon, and mixtures thereof, and Y is selected from the group consisting of hydrogen, alkali metal, ammonium, and mixtures thereof, with a sulfonyl halide, a sulfuryl halide, a mixed sulfuryl ester halide, or a mixed sulfuryl amide halide of the formula

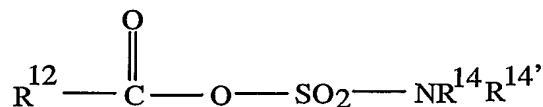
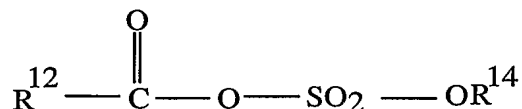
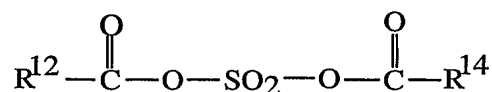
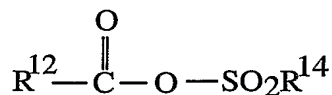


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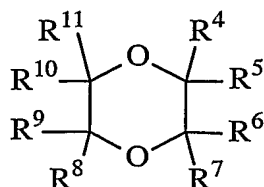
wherein X is selected from the group consisting of F, Cl, Br, I, and mixtures thereof, and R<sup>14</sup> and R<sup>14'</sup> are the same or different and each is selected from the group consisting of alkyl radicals having 1 to 4 carbon atoms, haloalkyl radicals of the formula C<sub>n</sub>H<sub>(2n+1)-w</sub>Z<sub>w</sub> wherein n is 1 to 4, Z is selected from the group consisting of F, Cl, Br, I, and mixtures thereof, and w ranges from 1 to 5, and aryl radicals



wherein R<sup>15</sup>, R<sup>16</sup>, R<sup>17</sup>, R<sup>18</sup>, and R<sup>19</sup> are the same or different and are selected from hydrogen and alkyl radicals having 1 to 20 carbon atoms, and mixtures thereof, to yield acyl sulfonate material of the general formula

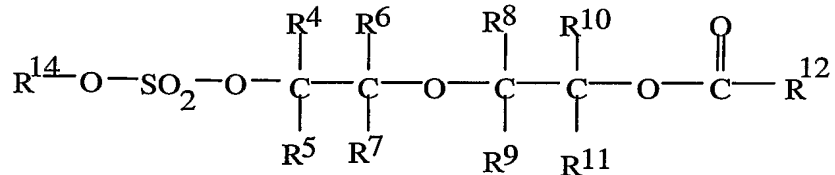
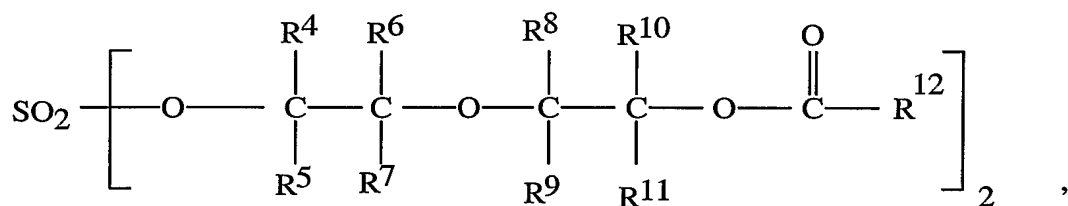
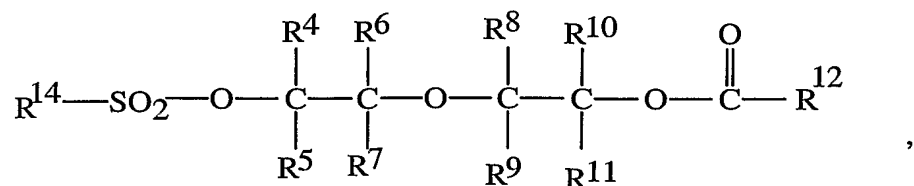


which is then reacted with a dioxane of the formula

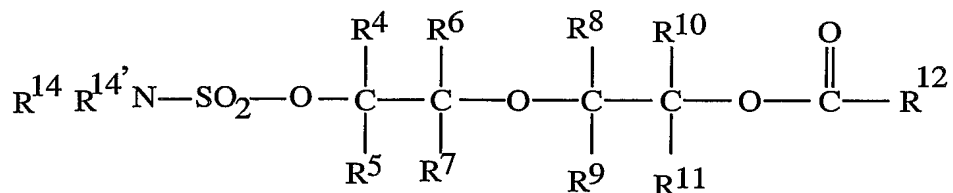


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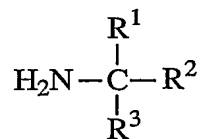
wherein  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$ ,  $R^9$ ,  $R^{10}$ , and  $R^{11}$  are the same or different and are selected from hydrogen, alkyl and hydroxyalkyl radicals having 1 to 4 carbons to yield



or

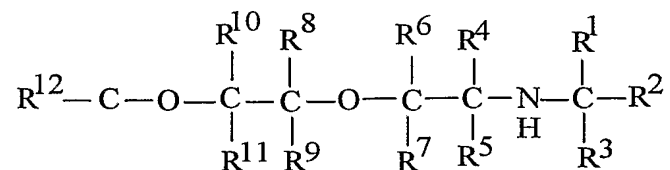


which is then aminated with an alkylamine of the formula

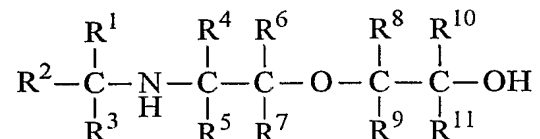


wherein  $R^1$ ,  $R^2$ , and  $R^3$  are as previously defined to yield

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which is then hydrolyzed with base to yield



2. The method of claim 1 for the synthesis of severely sterically hindered secondary aminoether alcohols using sulfonyl halide of the formula  $R^{14}SO_2X$ .

3. The method of claim 1 for the synthesis of severely sterically hindered secondary aminoether alcohols using sulfuryl halide of the formula  $SO_2X_2$ .

4. The method of claim 1 for the synthesis of severely sterically hindered secondary aminoether alcohols using the mixed sulfuryl ester halide of the formula  $R^{14}OSO_2X$ .

5. The method of claim 1 for the synthesis of severely sterically hindered secondary aminoether alcohols using the mixed sulfuryl amide halide of the formula  $R_2^{14,14'}NSO_2X$ .

6. The method of according to any one of the preceding claims wherein  $R^1$ ,  $R^2$  and  $R^3$  are methyl radicals.

7. The method of according to any one of the preceding claims wherein  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$ ,  $R^9$ ,  $R^{10}$ , and  $R^{11}$  are hydrogen.

8. The method of according to any one of the preceding claims wherein  $R^{15}$ ,  $R^{16}$ ,  $R^{18}$ , and  $R^{19}$  are hydrogen and  $R^{17}$  is hydrogen or methyl.

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9. The method of according to any one of the preceding claims wherein the base is selected from alkali metal hydroxide, alkali metal alkoxide, or alkali metal carbonate.

10. The method of according to any one of the preceding claims wherein Y is hydrogen or sodium.

11. The method of according to any one of the preceding claims wherein R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are methyl, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup>, R<sup>9</sup>, R<sup>10</sup>, and R<sup>11</sup> are hydrogen, R<sup>15</sup>, R<sup>16</sup>, R<sup>18</sup>, and R<sup>19</sup> are hydrogen, R<sup>17</sup> is hydrogen or methyl, and Y is hydrogen, sodium, or ammonium.

12. The method according to any one of the preceding claims wherein the acyl sulfonate is made by reacting organic carboxylic acid or the salt of a carboxylic acid with the sulfonyl halide, sulfonyl halide, mixed sulfonyl ester halide or mixed sulfonyl amide halide at a temperature in the range of between about -20 to 200°C at a pressure between about 1 bar and 100 bars, the acyl sulfonate is reacted with the dioxane at a molar ratio of dioxane to acyl sulfonate in the range of 1:1 to 10:1 at a temperature of between about 50°C to about 200°C to yield a cleavage product, the cleavage product and the alkyl amine reacted at an amine to sulfonate group ratio ranging from about stoichiometric to about 10:1 at pressure of from about atmospheric (1 bar) to about 100 bars at temperature of from about 40°C to about 200°C, and the resulting aminated product is hydrolyzed with base at a temperature from about 20°C to about 110°C.

13. The method according to any one of the preceding claims wherein the organic carboxylic acid or the salt thereof, the sulfonyl halide, sulfonyl halide, mixed sulfonyl ester halide or mixed sulfonyl amide halide and the dioxane are combined in a single step to produce a reaction mixture, the

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reaction mixture being heated at a temperature of between about 50°C to about 200°C to produce the cleavage product, the cleavage product and the alkylamine are reacted at an amine to cleavage product ratio ranging from about stoichiometric to about 10:1 at a pressure from about atmospheric (1 bar) to about 100 bars at a temperature of from about 40°C to about 200°C, the resulting aminated product being reacted with base at a temperature from about 20°C to about 110°C.